T2550

MODEL

Programmable Automation Controller
Specification Sheet

T2550 is a high performance solution offering extremely cost effective redundancy options, making high availability viable for more of your process. The control unit and I/O system form the basis of a complete distributed control environment capable of continuous analogue, logic and sequential control designed to maximise Return on Investment from your process.

Maximise Process Uptime

Using T2550 reduces engineering costs and its high availability maximises your process uptime. The controller redundancy is automatically commissioned – simply plug the additional processor module into the redundant base and press synchronise. No special cabling or engineering is required. Changeover to a secondary controller is automatic with uninterrupted control and bumpless transfer of communications and process I/O. Replacement of a processor or I/O module, for any reason, can be done with the power on and initialisation is automatic. These powerful features combine with the very high MTBF of the system's I/O and passive backplanes to provide extremely high system availability.

T2550 also supports on line reconfiguration and on line monitoring for all continuous and logic control functions. With support for adding and hot swapping I/O modules, active strategy components can be modified to support system enhancements without the need for a shutdown.

Autonomous and Integrated, Scalable and Distributed

T2550 provides a comprehensive standalone solution or a powerful addition to a wider system. Communicating over 10/100baseT Ethernet (ELIN), its peer to peer communications system can be used for interlocking, signal conditioning, alarm monitoring, remote data acquisition or devolved control. T2550 supports Modbus TCP, serial Modbus RTU (both as master or slave) and OPC. It can be used in conjunction with other systems such as PC based SCADA packages, Programmable Logic Controllers and Eurotherm Visual Supervisor, or can provide an effective standalone solution.

A range of DIN rail mounting base sizes is available for I/O modules and serial communication interfaces. Multiple bases may be easily interconnected so processors can share interlocking, acquisition and multi-loop control solutions in distributed and larger scale applications.

Easy Configuration

'LINtools' is a friendly Windows graphical configuration package used to configure the system in a choice of IEC 61131 configuration languages. It can automatically configure I/O points for connected T2550 instruments with the required function blocks placed on a graphical worksheet where the I/O simply needs parameterising. A wide selection of function block libraries is available for easy implementation of advanced control requirements. Ladder editors provide combinational logic and sequencing while Sequence Function Charts (SFCs) can program more advanced sequencing. VIEW and Online reconfiguration modes allow dynamic monitoring and editing of running databases and flow charts.

- **Cost Effective Controller Redundancy**
  - Automatic commissioning
  - Bumpless changeover
  - Redundant communications
- **Power Supplies**
  - Redundant system supply
- **High System Availability**
  - Redundant CPUs with automatic takeover
  - Live replacement of CPU with automatic initialisation
  - Online reconfiguration
  - Extensive health monitoring and diagnostics with watchdog relay
  - I/O Modules with very high, field-proven MTBF
  - Passive I/O backplane
- **Hot swap I/O**
- **Alarm Monitoring**
- **Signal Conditioning**
- **IEC 61131 Programming**
  - Ladder
  - Sequence Function Chart (SFC)
  - Function Block Diagram (FBD)
  - Structured Text (ST)
- **Advanced PID Control**
  - Single loop
  - Cascade control
  - Ratio control
  - Override control

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Scalable Control Units match process hierarchy

The modular nature and seamless interaction of ELIN based control units allow both physical distribution and adoption of a structured control methodology.

T2550 Programmable Automation Controllers

The T2550 is capable of both analogue, logic and sequence control and is self-contained up to a capacity of 128 I/O points. Larger systems can be easily implemented by interconnecting multiple T2550 units to form a distributed system, utilising the peer-to-peer communications.

Alternative Ethernet and serial communications protocols are available to facilitate the simple connection to other equipment.

T2550 Unit Supervisor

Large systems or complex sequence and batch applications are treated in a 'layered' fashion by decoupling front-end closed-loop control and its associated I/O and control modules (logical devices) from the main strategy, following the S88.01 standard for batch control. This is achieved by assigning the role of strategy coordination to the T940X or the 'short' version of the T2550. This T2550, which uses the same processor as the standard controller has no I/O and provides coordination and sequence control of the lower level elements.

The T2550 units are responsible for local control loops as well as interlocks and override logic, etc. The decoupling of front-end and coordination control facilitates strategy modification on a running plant, and changes to the Unit Supervisor (or even complete replacement) may be carried out without affecting the operation of loops in the T2550, which continue to be accessible from the workstations.

Continuous and Logic control

The T2550 supports the level of block structuring normally only found in advanced DCS systems. The continuous strategy is built up by interconnection of function blocks from a rich library of analogue and logic elements.

Sequence control

Sequences act in a supervisory role relative to the continuous database and may be loaded and unloaded independently. This is increasingly important for batch sequences, which relate to the process rather than the physical equipment, as these must be changed to meet the requirement of flexible plants. The capacity of the local filing system allows storage of a large number of sequences. Their operation is controlled through specialised blocks in the continuous database.

Redundant processing

Using the T2550 as a redundant controller pair automatically protects your process against controller or communications failure. If external or field I/O communications to the active controller, or the active controller itself fail then the secondary controller automatically takes over, providing uninterrupted control and bumpless transfer of the communications and process I/O. An alarm warns the operator that the changeover event has occurred.

Replacement of a processor for any reason can be done with the power on.
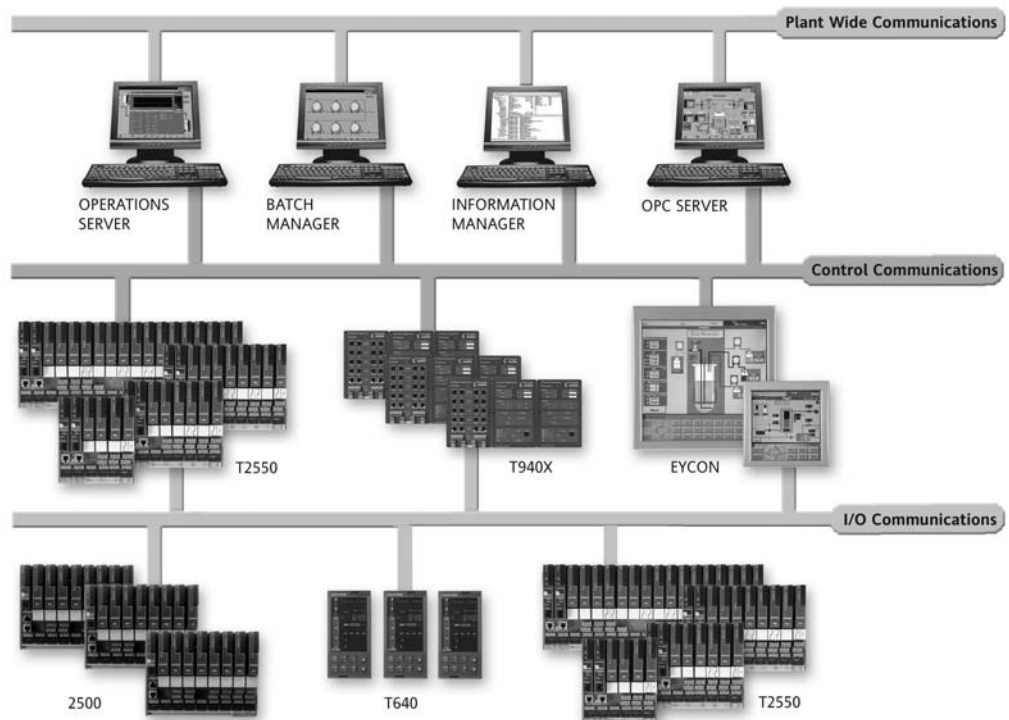
Commissioning of the redundant capable processor is simple: Plug the second processor into a redundant base unit and press synchronise, all the rest is automatic. No special cabling is required.

ELIN System Architecture

The ELIN control network is the backbone of the control and data acquisition network that provides peer-to-peer communications between control nodes and seamless access to all data by operator and configuration workstations.

All nodes appear as part of a coherent distributed database. The database in any networked element is accessible to any other network element, allowing complete flexibility in strategy interconnection.

ELIN supports OPC with a readily available server for direct connection to operator and configuration workstations. It also supports other Eurotherm control and logging units, including the Visual Supervisor where standalone or panel-mounted display and control is needed.

ALIN networks

Connection to existing LIN networks via T225 ELIN – ALIN bridge.

Configuration

At the heart of the system is the LINtools configuration and engineering station. LINtools is a comprehensive set of configuration, test, documentation and commissioning tools for strategy elements distributed over the LIN control backbone.

The LINtools suite includes graphical configuration of block structured continuous control, sequence control SFC's, ladder and graphics for any LIN based product. VIEW and Online reconfiguration modes allow dynamic monitoring and editing of running databases and flow charts.

LINtools follows the IEC 61131-3 standard for sequence configuration, while adopting a decoupling of continuous and sequential strategy appropriate to complex process control.

LINtools is designed for simplicity and productivity. Online help, free-format text annotation and area editing are included to make LINtools easy to use and configuration easy to understand and reuse. LINtools runs on a standalone or networked PC.

IEC 61131

Languages appropriate for the I/O type and for the application

- Function Block Diagram
- Sequence Function Chart
- Structured Text
- Ladder Logic Control

Online reconfiguration

Control systems can be large and complex. They are expected to serve many needs and work well for long periods without shutdown under ever varying workloads. Online reconfiguration provides a useful foundation for enhancement of the deployed control system and allows modification of the systems application software when it is running. It allows active strategy components to be modified, wrapped with additional functionality or replaced with a different implementation. T2550 has generic support for adding and hot swapping I/O. Online reconfiguration can use the same or new I/O interfaces and any internally available variables.

You can tentatively add and delete, function blocks and wires to create a new or improved control strategy for your application while the process is running. You can then try and untry the strategy to ensure it is correct for your application before finally applying.

Continuous control

Continuous strategies are configured graphically on screen using 'block structured' techniques implemented across the system.

The control configurator supports a comprehensive library of functions together with powerful editing and compound definition facilities. Merging allows the re-use of similar sections of databases avoiding duplication of effort. Free text may be placed on the screen or attached to function blocks for simple production of descriptive documentation. Context-sensitive help reduces the need to keep referring to manuals.

Sequence

Sequences are configured graphically using Sequential Function Charts (SFCs) following the IEC 61131-3 standard. Steps initiate Actions which may be Structured Text statements (ST) or nested SFCs. Transitions determine when control passes from one step to the next. By accessing the continuous control strategy this configurator presents the available points through a menu system – eliminating the need to remember the names of points and reducing the likelihood of typing errors.

The sequence configurator supports text annotation and context-sensitive help.

Action block

Action blocks in the continuous control strategy have their functionality defined in Ladder diagrams or Structured Text (ST) within a standard template. These are particularly useful for implementation of plant control modules.
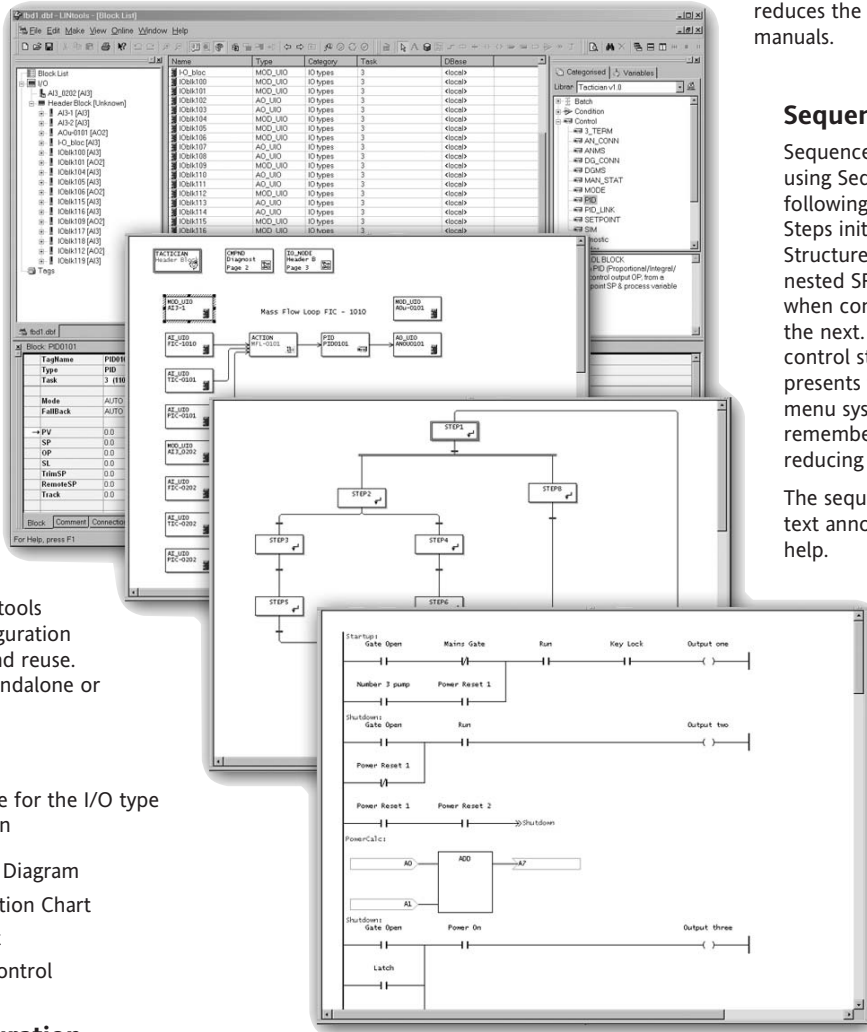
Auto I/O configuration

The instrument can automatically create its own LIN Database, including all necessary module and I/O Function Blocks, based on the I/O detected in the Base Unit. When the detection is complete, an operational database is created and runs automatically.

Automatic database creation is available from within LINtools when connected to a network containing T2550s.

Documentation

LINtools provides an electronic documentation facility including the graphical representation of the control strategy and a listing of the block parameters and connections. This can be transferred across the network and output can be to a printer, Postscript or AutoCAD compatible format. Free-format user annotations can be added to complete your documentation requirements

SPECIFICATIONS

16 module — 467mm
8 module (as shown) — 264mm
6 module — 214mm
4 module — 164mm

← Passive backplane

Terminal Unit for 2500M I/O module

Terminal Unit for T2550

Any type of I/O modules may be placed at any slot position

2500 Terminal Units click into place to suit the I/O module required

Module side view

102.9mm

180mm
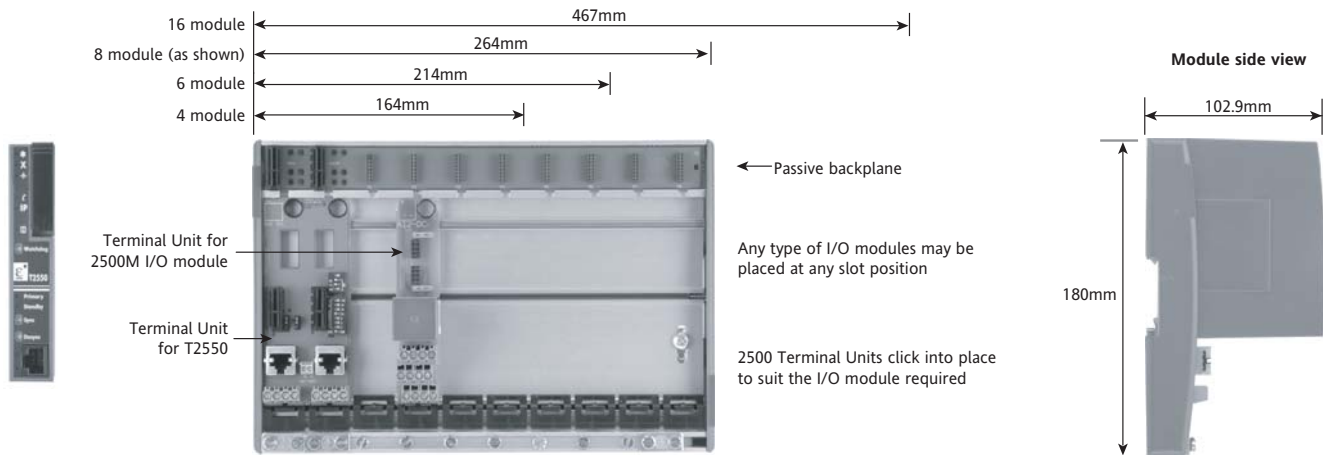
T2550B – Base unit

The Base Unit is fitted with the T2550 I/O Controller Module(s) plus additional I/O Modules. These modules plug onto Terminal Units, which provide the wiring interface between the plant or machine and the I/O modules. Bases are available in five sizes to suit the number of modules required in a particular system.

Intercommunication between the I/O modules and the processor is effected by the use of a passive internal module I/O bus running the full width of the base. Each module position is tracked separately for additional security during live replacement of I/O modules.

The base consists of an aluminium extrusion, the internal I/O bus and mounting supports. It is designed to be DIN rail mounted or directly fixed to a bulkhead or mounting plate. Both base and modules can be installed horizontally or vertically.

Mechanical

I/O Module capacity	0	4	6	8	16
Width (mm)	36	164	214	264	467
Weight no modules (Kg)	0.2	0.45	0.6	0.7	1.2
all modules (Kg)	0.5	1.3	1.7	2.1	3.7

|	
Height:	180mm
Depth:	102.9mm-132.9mm with retaining lever raised
Mounting:	DIN rail or Bulkhead, can be mounted horizontally or vertically
DIN rail:	Use symmetrical DIN rail to EN50022-35 x 7.5 or 35 x 15
Casing:	Without additional protection IP20
Ventilation space:	25mm free space above and below

Termination units

The I/O modules are mounted on the base using terminal assemblies. Terminal assemblies provide the interface between the input and output signals and the I/O modules. Terminal assemblies and I/O modules are keyed to inhibit insertion of the incorrect module to prevent damage to both equipment and plant.

Individual termination units provide for easy module replacement leaving the field wiring connected. Modules are inserted and removed from the termination unit using a unique, tool-less, locking lever system

Test Disconnect Units

Terminal assemblies have an optional fuse or link (isolator or disconnect). This provides a series of connections between the customer terminals and the I/O module, permitting pluggable fuse or link units to be placed in series with the signal. Fuse and link units are not interchangeable.
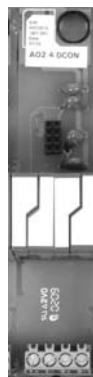
ORDER CODE

Redundant Base

T2550B/16R/C16/CMD/-/-	16 module base with earth clamps
*T2550B/04R/CO4/CMD/-/-	4 module base with earth clamps
*T2550B/08R/C08/CMD/-/-	8 module base with earth clamps
*T2550B/06R/CO6/CMD/-/-	6 module base with earth clamps
T2550B/16R/NONE/CMD/-/-	16 module base without earth clamps
*T2550B/04R/NONE/CMD/-/-	4 module base without earth clamps
*T2550B/08R/NONE/CMD/-/-	8 module base without earth clamps
*T2550B/06R/NONE/CMD/-/-	6 module base without earth clamps
*T2550B/00S/NONE/CMD/-/-	0 module base for additional processors and communications

Please consult factory for availability

T2550 - General Specifications

Supply voltage range:	19.2 to 28.8V dc
VA requirements:	< 80W maximum for fully loaded rack
Fuse rating:	4A time lag (Not customer replaceable)
IOC warm start time:	12 hours without external batteries
IOC power consumption:	1.5W maximum
Surge current:	8A maximum
Module power consumption:	See individual module specification

Environmental

Operating temperature:	0 to 55°C
Storage temperature:	-25 to 85°C
Relative humidity:	5 to 95 % (non-condensing)

RFI

EMC emissions:	BS EN61326 2002-02
EMC immunity:	BS EN61326 2002-02

Safety

BS EN61010-1/A2;1993
1995 Installation cat II, Pollution degree 2
Safety earth and screen connections are made to clearly marked earth terminals at the bottom of the base

Vibration

Vibration:	EN60068-2 test FC IEC1131-2 section 2.1.3 0.075mm peak amplitude 10-57Hz; 1g, 57-150Hz
Shock:	20g static shock

Diagnostic LED's

Diagnostic LED's indicate module diagnostic status.

All modules:	A green LED at the top indicates the module is powered and operating correctly
2500M Analogue modules:	Have red LEDs for each channel to indicate channel failure
2500M Digital modules:	Have Yellow LEDs for each channel to indicate the channel state.

Processor module

Primary processor and communications diagnostics are available from the LEDs on the front of the processor module. More advanced diagnostics are available remotely using LINtools monitor online over Ethernet to review the diagnostic blocks.

T2550 controller module:	A green LED at the top indicates the module is powered and operating correctly
Internal diagnostics:	A red LED indicates failure of the internal self diagnostic routines
Battery (if installed):	A green LED indicates battery health
Serial communications:	A yellow LED indicates communications activity
Duplex:	Indicates inter processor communications
Primary/Standby:	Two LEDs indicate status information
IP address:	A yellow LED indicates if the unit has resolved its IP address for Ethernet communications
Ethernet:	Two LEDs indicate link activity Link speed; 10/100baseT
Power on self tests:	On power up the T2550 automatically performs Power On Self Tests. These are a series of diagnostic tests used to assess the instrument. The above LEDs indicate module diagnostic status in case of a problem.

CPU redundancy

Processor redundancy is available for continuous, logic and sequence control.

A pair of processors operate in primary / secondary configuration with a high speed data link between them providing exact tracking of the control, logic and sequence databases. Transfer from the primary to secondary processor is bumpless.

The non-active processor can be replaced while the system is running and on synchronisation it loads its strategy from the active primary processor.

Redundant:	< 0.6s bumpless transfer for processor and I/O
Changeover time:	dependant on application size
Synchronisation time:	dependant on application size

Processor Switchover

During a processor switch over all outputs remain at the last value. The new primary processor begins executing is application from precisely the same point as the original processor.

Each processor has its own Ethernet IP address and each redundant pair uses two neighbouring node addresses on the ELIN network. This enables the system to communicate with the primary while still continuously testing communications to both processors. On processor switch over the ELIN node address is dynamically swapped to allow SCADA applications to display and log uninterrupted data. Changeover amongst LIN nodes is transparent.

The following conditions can cause the processor to switch over:

Hardware failure: Failure of primary controller internal health checks.

Hardware removal: Removing the primary processor will cause the secondary to take immediate control.

Removing the secondary will have no effect on control but will cause a system alarm on redundant configured systems.

Internal communications: Primary and secondary controllers continually monitor the communications to the I/O on the local base. Should the primary controller not be able to communicate with the I/O and the secondary can still communicate with the I/O changeover will occur.

If the secondary processor observes a fault in the primary communications or can see more I/O modules the secondary processor will request a changeover.

External communications: Each processor in a redundant pair continuously monitors external controller communications. Should the primary controller not be able to communicate with other declared nodes on the LIN network and the secondary can still communicate with the declared nodes a change over will occur.

If the secondary processor observes that it can see more declared nodes, the secondary processor will request a changeover.

Manual request: A user can request a changeover if a secondary processor is running, synchronised and healthy.

Removable Flash memory card: The storage of the cold start application files, the processor firmware and software licence code is on a secure compact flash card to enable easy transfer from one processor to a replacement.

Physical

CPU:	Motorola MPC852T
Bus size:	32 bit
System clock:	66 MHz
Removable Flash card size:	32 Mbytes

Control Switches

Processor front panel push button switches:	Watchdog reset. Processor synchronisation/ changeover. Processor desynchronisation

Power Supply connection

The duplex terminal unit supports dual power supply connection. In the event of a single power supply failure both processors are still supplied allowing redundant operation to continue uninterrupted.

A super capacitor maintains memory for up to 12 hours in the event of complete power failure to facilitate hot start of the processors. An external battery can be fitted to extend this back up time on the redundant system.

Super cap (Processor):	Maintains memory/real time clock and enables hot start for up to 12 hours in absence of battery backup input
Simplex (O base):	Battery support for data in SRAM and the Real-Time Clock for a minimum of 72 hour continuous (5 year intermittent use)
Redundant:	Additional terminals for an external battery connection to support SRAM and the Real-Time Clock
Internal battery type:	Lithium Manganese Dioxide PA250983
External rechargeable battery:	Use S9537
Battery charger:	Use S9538

Watchdog Relays

Each processor is fitted with a single watchdog relay.

Watchdog relay:	SPST, 1 per CPU, connectable in parallel or series
Contact rating (resistive):	24V ac/dc at 0.5A
Isolation:	30V ac rms or 60V dc

Live plug-in

Processors and I/O modules can be replaced while powered without any disturbance to the field wiring or other inputs and outputs – reducing downtime and minimising disturbance to other signal conditioning strategies.

T2550 ORDER CODE

T2550	1	2	3	4

T2550	Redundant capable processor			

1 IOC & Software

	Foundation	Standard	Control	Advanced
L10	Unbounded	0	0	off
L20	Unbounded	50	4	off
L30	Unbounded	100	8	off
L40	Unbounded	Unbounded	12	off
L50	Unbounded	Unbounded	16	off
L60	Unbounded	Unbounded	24	off
L70	Unbounded	Unbounded	32	off
L80	Unbounded	Unbounded	Unbounded	off
L90	Unbounded	Unbounded	Unbounded	on

2 Flash Card Size

F32	32M Flash card (standard)
NONE	None fitted

3 Ethernet Comms Protocol

ELIN	LIN peer-to-peer communications
MB-TCPM	Modbus-TCP Master communications includes LIN peer-to-peer

4 Serial Comms Protocol

SERIAL	HMI communications and raw communications – Non isolated
MB	Modbus Master communications – Non isolated
*ISOSERIAL	HMI communications and raw communications – Isolated
*ISOMB	Modbus Master communications – Isolated

Please consult factory for availability

SPECIFICATIONS

Communications

Ethernet communications

Ethernet The T2550 supports Ethernet LIN (ELIN) protocol that provides secure peer-to-peer communications between bases and to other Ethernet devices over 10/100baseT Ethernet from each processor. Simultaneously it can support Modbus-TCP Master or Slave to other Modbus-TCP devices.

ELIN port

Connectors:	Shielded RJ45 connector per processor
Network medium:	Ethernet Cat5
Network type:	LIN over Ethernet
Speed:	10/100baseT
Network topology:	Star connection to a hub
Line length (maximum):	100 metres, extendible by repeater
Allocation of IP address:	Fixed, DHCP, Link-Local, BootP
Broadcast storm protection:	Integrated in the processor
LIN address:	7-way switch-bank

Serial communications

Third party devices such as PLCs supporting Modbus can be readily integrated into the ELIN based architecture by direct connection to T2550 control units.

The MODBUS communications allows a T2550 to be used as a gateway providing access to database elements in any ELIN node.

RS422/485 serial communications

Connector:	2 x RJ45 connector
Comms medium:	RS422 (5-wire) or RS485 (3-wire) Jumper selectable
Line impedance:	120Ω-240Ω twisted pair
Line length:	1220m maximum at 9600 bits/sec
Units per line:	16 maximu (electrical loading) expandable by use of buffers

Note:
Use of a comms buffer/isolator is recommended

Modbus/J-BUS

Protocol:	Modbus/J-BUS RTU configurable master or slave
Data rate:	Selectable 600-19.2k bits/sec
Data format:	8 bit, selectable parity 1/2 stop bits
Modbus data tables:	16, configurable as registers or bits Maximum table length: 200 registers or 999 bits
Redundancy:	MODBUS communications are supported by the T2550 in simplex and redundant mode
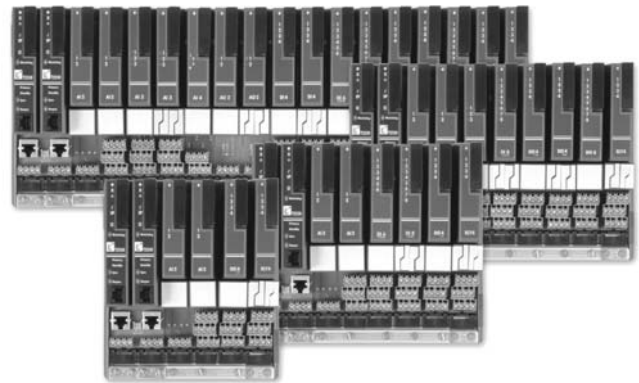
Front Panel LEDs and Switches

Condition Indicators
- Status
- Fault
- Battery
- Communications (Serial)
- IP Resolution
- Duplex
- Watchdog Switch
- Primary
- Standby

Status and Switching
- Sync Switch
- Desync Switch
- Ethernet (Speed)
- Ethernet Communcations Port
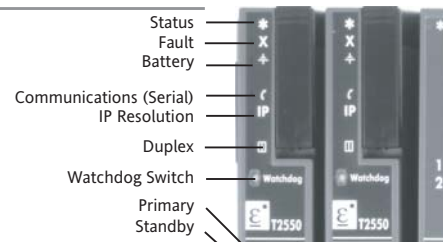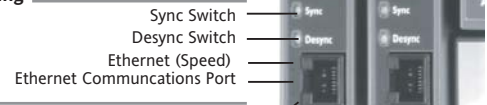
Ethernet Communications Indicators
- Ethernet (Activity)

Serial Communications and Power (Terminal Unit)
- Serial Comincations Port
- External Battery Connector
- 24V dc

- Status
- I/O Modules
- Fuse Disconnectors
- Earth Bar
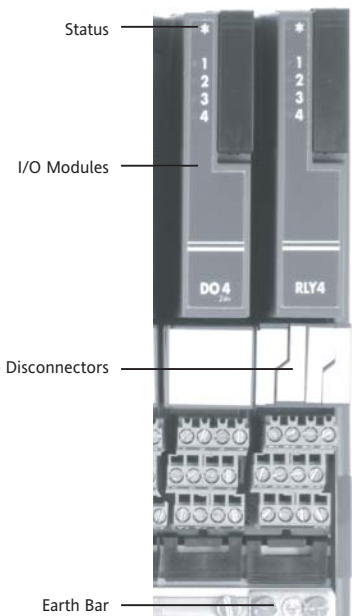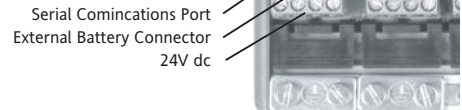
Control Specifications

Continuous Database resources

Maximum database size . . . . .default max values 85k bytes

Database resources
Number of database blocks 255
Number of database templates 50
Number of template libraries 28
Number of external databases 32
Number blocks in local Dbase cached elsewhere .255
Number blocks in remote Dbases cached locally .127
Number of server tasks 6
Number of field-to-field connections 510

Sequence Control Resources

Sequence memory Programme data . . . . .53k bytes
Maximum amount of ST space available . . . . .59k bytes

SFC Resources
Number of SFCs (root & sub-SFCs) loadable 68
Number of root SFCs loadable 15
Number of steps loadable 215
Number of 'wires' permitted going into and out of step 710
Number of transitions loadable 318
Number of 'wires' permitted going into transitions 424
Number of action associations loadable 848
Number of actions 424
Number of timed events schedulable (by active steps) 137
Sequence rate (reduces with increasing workload) .9Hz

User Tasks

Multiple tasks are available to the user to tune the update rate of I/O response and the control function.

User Tasks 4

User task update rates

Task 1 - Synchronous to Fast I/O . . . . .10ms or N*10ms
Only version 2 10ms I/O types can be assigned to this task (see table below) . . . . .

Task 2 – Auxiliary task to task1 . . . . .10ms or N*10ms
Runs at task 1 rate or integer multiple of task 1 rate

Task 3 - Synchronous to Standard I/O . . . . .110ms or N*110ms
All analogue and digital I/O types can be assigned to this task

Task 4 – Auxiliary task to task3 . . . . .110ms or N*110ms
Runs at task 3 rate or integer multiple of task 3 rate

Supported I/O Module Types

The T2550 shares I/O modules with the 2500 I/O.

Type	Description	Maximum update speed	
		Original modules	Version 2
AI2	Analogue Input 2 channels (all I/O types)	110ms	-
AI3	Analogue Input 3 channels (mA + Tx PSU)	110ms	-
AI4	Analogue Input 4 channels (TC, mV, mA)	110ms	-
AO2	Analogue Output 2 channels (mA or V)	110ms	110ms
DI4	Digital Input 4 channels (logic)	110ms	-
DI6_MV	Digital Input 6 channels (115V ac rms)	110ms	-
DI6_HV	Digital Input 6 channels (230V ac rms)	110ms	-
DI8_LG	Digital Input 8 channels (logic)	110ms	10ms
DI8_CO	Digital Input 8 channels (contact)	110ms	10ms
DO4_LG	Digital Output 4 channels (10mA)	110ms*	10ms
DO4_24	Digital Output 4 channels (100mA)	110ms*	10ms
RLY4*	Relay Output 4 channels (3 n/o, 1 c/o)	110ms*	10ms
DO8	Digital Output 8 channels (1A per ch)	10ms	-
F12	Frequency Input 2 channels	10ms	

* Only supported with T2550 in simplex mode

Continuous strategy function blocks categories

F = Foundation, **S** = Standard, **C** = Control, **A** = Advanced

SOFTWARE LICENCE	CATEGORY				
Block	**F**	**S**	**C**	**A**	**Description**
I/O					
AI_UIO, AO_IUO, DI_UIO, DO_UIO, FI_UIO, MOD_UIO, TPO_UIO	✓				Universal I/O & Time-proportioning output
CALIB_UIO	✓				Analogue calibration
Communicationss					
GW_CON	✓				Gateway configuration block
GW_TBL	✓				Gateway table block
Conditioning					
CHAR, UCHAR, FILECHAR	✓				Characterisation
AN_ALARM, DIGALARM	✓				Analogue alarm
INVERT		✓			Analogue inversion
FILTER, LEAD_LAG		✓			Filter
RANGE		✓			Range
FLOWCOMP		✓			Compensated flow
GASCONC				✓	Natural gas concentration data block
AGA8DATA				✓	AGA8 calculation
Control					
AN_CONN	✓				Analogue connection block
DG_CONN	✓				Digital connection block
ANMS, DGMS		✓			Analogue & Digital manual stations
SIM		✓			Simulation
SETPOINT		✓			Set-point
MAN_STAT		✓			Manual station
MODE		✓			Mode block
PID_LINK		✓			PID linking block
PID, 3_TERM			✓		Control block
Timing					
TIMER	✓				Timer
TIMEDATE	✓				Time/date event
DELAY		✓			Delay
TPO	✓				Time-proportioning output
RATE_ALM		✓			Rate alarm
RATE_LMT		✓			Rate limit
TOTAL, TOTAL2, TOT_CON		✓			Totalisation
DTIME		✓			Dead-time
SEQE		✓			Sequence
SEQ			✓		Sequence
Selector					
ALC	✓				Alarm collection
SELECT, SWITCH, 2OF3VOTE		✓			Selector, Switch, Best-average
Logic					
PULSE		✓			Pulse block
AND4, OR4, XOR4 NOT, LATCH		✓			AND, OR, Exclusive-OR, NOT, Latch
COUNT		✓			Count
COMPARE		✓			Compare
Maths					
ADD2, SUB2, MUL2, DIV2		✓			Add Subtract Multiply Divide
EXPR		✓			Expression
ACTION, DIGACT, ACT15A3W, ACTUI818			✓		Action blocks
Control Module					
VLV1IN			✓		Valve control modules
VLV2IN			✓		Valve control modules
VLV3WAY			✓		Valve control modules
MTR3IN			✓		Valve control module block
DUTYSTBY			✓		Valve control module block
AN_ALM_2			✓		Valve control module block
Diagnostic					
ALL Diag Blocks	✓				Diagnostic block
Batch					
RECORD		✓			Record block
DISCREP		✓			Discrepancy block
SFC_MON		✓			SFC monitor block
SFC_DISP		✓			SFC display block
SFC_CON			✓		SFC control

ANALOGUE INPUT MODULE

2500M/AI2 - Two channel analogue input

This analogue input module is used to monitor analogue signals from a wide range of plant sensors. The mA and TC inputs each require the appropriate Terminal Unit.

The second channel of the AI2 has a special high impedance range for use with zirconia probe inputs.

No of channels:	2
Input types:	TC, RTD, Volts, mA, mV, Potentiometer, Pyrometer, Zirconia probe
mV range:	-150mV to +150mV at input impedance >100MΩ
mA range:	-22mA to +22mA with 5Ω burden in the terminal unit
Volts range:	-10.2V to +10.2V at input impedance 303kΩ
RTD support:	Support for 2, 3 and 4 wire resistance thermometer devices
Ohms range:	0 to 600Ω 3- or 4-wire lead compensation
Hi Ohms range:	0 to 5kΩ 3- or 4-wire lead compensation
Pot range:	5% to 95% 'rotation' of 100Ω to 5kΩ pot
Resolution:	Better than 0.001% of range
Linearity:	Better than 0.003% of range
Input filtering:	OFF to 999.9 seconds
Input accuracy:	Electrical input factory calibrated to better than 0.1% of reading
System isolation:	Reinforced, 264V ac maximum
Channel isolation:	Reinforced, 264V ac maximum between thermocouple channels
Functional:	264V ac maximum between RTD, volts and mA
Series mode rejection:	60dB (50-60Hz, 1mA rms)
Common mode rejection:	120dB (50-5kHz, 50V rms)
Current consumption:	100mA maximum

TC Input specification

Linearisation types:	J, K, L, R, B, N, T, S, C, PL2, PT100, Linear, SqRoot, plus custom
CJC system:	Measured by RTD fitted on terminal unit
CJC accuracy:	±0.5°C, over -10°C to +70°C
CJC rejection:	Better than 30:1
Initial accuracy:	±1°C or ±0.2% of reading whichever is greater (standard thermocouples)

Note:
User Calibration options can improve performance, limited only by noise and non-linearity.

2500M/AI3 - Three channel analogue input

Provides three isolated current input channels specifically designed to meet the requirements of modern two wire transmitters. Each channel has its own isolated 24V supply for 3-wire transmitter excitation.

Each channel is protected against short circuit (with 24V dc supply on) and utilises a sophisticated trip and try system where the module senses over current and cuts the power, after a period the circuit checks for continued circuit malfunction.

The module can be optionally fitted with disconnects to allow isolation of an individual input to allow work on the loop to continue safely.

No of channels:	3
Input range:	-28mA to +28mA
Resolution:	Better than 1uA (16 bits with 1.6 second filter time)
Linearity:	Better than 10uA
Initial accuracy:	Factory calibrated to better than ±0.1% of reading
Input filtering:	OFF to 999.9 seconds
Burden resistance:	100Ω nom, 50mA max current
Channel PSU:	22-25V dc, current limited 30mA nom, self-resetting
System isolation:	Reinforced, 264V ac maximum
Channel isolation:	Functional, 50V ac maximum
Current consumption:	100mA maximum

Notes:
1. User Calibration options can improve performance, limited only by noise and non-linearity.

2. Total burden can be increased to 250Ω or HART by cutting a link track on the terminal unit.

ANALOGUE INPUT MODULE

2500M/AI4 - Four channel analogue input

This analogue input module is used to monitor analogue signals from a wide range of plant sensors. The mA and TC inputs each require the appropriate Terminal Unit.

No of channels:	4
Input types:	TC, mV, mA, Pyrometer
mV range:	-150 - +150mV at input impedance >100MΩ
mA range:	-22 - +22mA with 5Ω burden in the terminal unit
Resolution:	Better than 0.001% of range
Input filtering:	OFF to 999.9 seconds
Initial input accuracy:	Electrical Input Factory Calibrated to better than 0.1% of reading
System Isolation:	Reinforced, 264V ac maximum
Channel isolation:	Functional, 264V ac maximum separating Ch1 and Ch2 from Ch3 and Ch4
Series mode rejection:	60dB (50-60Hz, 1mA rms)
Common mode rejection:	120dB (50-5kHz, 50V rms)
Current consumption:	100mA maximum

TC Input specification

Linearisation types:	J, K, L, R, B, N, T, S, C, PL2, linear, SqRoot, plus custom
CJC system:	Measured by RTD fitted on terminal unit
CJC accuracy:	±0.5°C, over -10°C to +70°C
CJC rejection:	Better than 30:1
Initial accuracy:	±1°C or ±0.2% of reading whichever is greater (standard thermocouples)

Notes:

1. *User Calibration options can improve performance, limited only by noise and non-linearity.*

2. *Wiring care and sensor choice should be used to prevent ground loops when using non-isolated TC's.*

ANALOGUE OUTPUT MODULE

2500M/A02 - Two channel analogue output

This analogue output module provides two isolated analogue output channels. Each output may be independently configured for current or voltage mode.

The module can be optionally fitted with disconnects to allow isolation of an individual output to allow work on the individual loop to continue safely.

No of channels:	2
Current output:	-0.1 to 20.5mA; 10V dc maximum compliance with total burden less than 500Ω
Voltage output:	0 to 10V dc; 20mA maximum compliance with total load greater than 500ohms
	-0.5 to 10.5 V dc; 20mA maximum compliance with total load greater than 1500Ω
Resolution:	Better than 1 part in 10,000 (15 bit typical)
System isolation:	Reinforced, 264V ac
Channel isolation:	Functional, 264V ac maximum
Current consumption:	120mA maximum

AI4 – ORDER CODE

Module

2500M/AI4UNIV	Four channel – T/C, mV, mA input

Terminal Unit

2500T/AI4/TC/NONE	Terminal unit for 4 channel TC with CJC
2500T/AI4/mV/NONE	Terminal unit for 4 channel mV
2500T/AI4/mA/NONE	Terminal unit for 4 channel mA

AO2 – ORDER CODE

Module

2500M/AO2UNIV	Two channel isolated mA, volts

Terminal Unit

2500T/AO2/UNIV/NONE	Terminal unit
2500T/AO2/DCONNECT	Terminal unit with disconnect

DIGITAL INPUT MODULE

2500M/DI4 - Four channel digital input

This digital input module accepts four logic inputs, and may be wired either for voltage input (either polarity) or for contact closure.

No of channels:	4	
Input functions:	On/Off, pulse and de-bounce	
System isolation:	Reinforced, 264V ac	
Channel isolation:	Channels share a common connection	
Current consumption:	100mA maximum	

Contact' Variant

External supply:		18-30V dc wetting power required
Contact closure:	ON state:	Input resistance threshold 100Ω (<1KΩ typical)
	OFF state:	Input resistance threshold 10KΩ (>7KΩ typical)
Wetting current:		>8mA
Wetting voltage:		>9V, 12V typical measured open-circuit

Logic' Variant

Logic inputs:	ON state:	Input voltage threshold 10.8V dc, 30V maximum
	OFF state:	Input voltage threshold 5.0V dc non-overlapping
Input impedance:		4KΩ approx
		(at least 2mA drive required for 'ON')

2500M/DI8 - Eight channel logic input

This eight channel digital input module accepts eight logic inputs and is available in two factory option formats for voltage or contact-closure input.

No of channels:	8	
Input functions:	On/Off. pulse and de-bounce inputs with input invert	
System isolation:	Reinforced, 264V ac maximum	
Channel isolation:	50V ac functional isolation between 4 pairs of channels	
Current consumption:	100mA max	

'Contact' Variant

Contact closure:	ON state:	Input resistance threshold 100Ω (<1KΩ typical)
	OFF state:	Input resistance threshold 100Ω (>7KΩ typical)
Wetting current:		4mA typical
Wetting voltage:		>9V, 12V typical, measured open-circuit

'Logic' Variant

Logic inputs:	ON state:	Input voltage threshold 10.8V dc, 30V maximum
	OFF state:	Input voltage threshold 5.0V dc non-overlapping
Input impedance:		5KΩ approx (>2mA drive required for 'ON')

DI4 – ORDER CODE

Module

2500M/DI424V/EXTPWR	Two channel – input

Terminal Unit

2500T/DI4/UNIV/NONE	Terminal unit with dummy cover fitted
2500T/DI4/UNIV/DCONNECT	Terminal unit with disconnects

DI8 – ORDER CODE

Module

2500M/DI8logic/NONE	Eight channel – non isolated Logic
2500M/DI8contact/NONE	Eight channel – non isolated Connect

Terminal Unit

|	
2500T/DI8/UNIV/NONE	Terminal unit
2500T/DI8/UNIV/DCONNECT	Terminal unit with disconnects

DIGITAL INPUT MODULE

2500M/DI6 - Six channel AC voltage input

The six channel digital input module accepts AC voltage inputs and is available in two factory options optimized for 115V ac or 230V ac ranges.

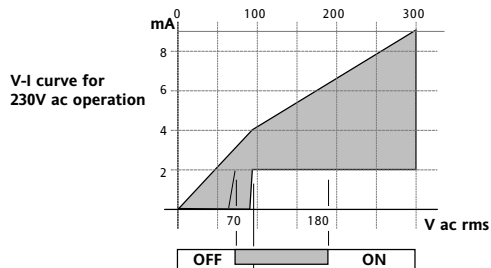|	
No of channels:	6
Input functions:	On/Off or de-bounce
Frequency:	47Hz-63Hz
Transient immunity:	EN50082
System isolation:	Reinforced, 264V ac maximum
Channel isolation:	Functional, 264V ac maximum
Current consumption:	100mA max

115V ac' Variant

Active On state:	>95V ac rms, 132V ac rms maximum
Inactive OFF state:	<30V ac rms
Main input current:	More than 2mA required for 'ON'
Maximum input current:	8mA

V-I curve for 115V ac operation
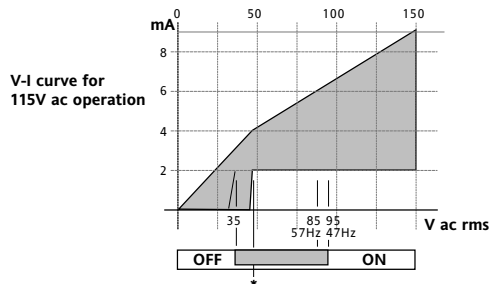
230V ac' Variant

Active ON state:	>180V ac rms, 264V ac rms maximum
Inactive OFF state:	<60V ac rms
Min input current:	More than 2mA required for 'ON'
Maximum input current:	8mA

V-I curve for 230V ac operation

* The threshold may be between Vmaxoff and Vmion Ioff is defined at the threshold

INADVERTENT USE OF THE WRONG RANGE

115V type on 230V ac No damage will result.

Power dissipation will be higher than desirable for continued use on all 6 channels simultaneously.

THIS IS NOT A RECOMMENDED MODE OF OPERATION

DI6 – ORDER CODE

Module
2500M/DI6HVAC/230V	Six channel high voltage 230 volt ac logic
2500M/DI6HVAC/115V	Six channel high voltage 115 volt ac logic

Terminal Unit
2500T/DI6/UNIV	Terminal unit

DIGITAL OUTPUT MODULE

2500M/DO4 - Four channel logic output

This digital output module provides four logic outputs and is available in two factory option formats for standard or high-current output.

No of channels:	4
System isolation:	Reinforced, 264V ac maximum
Channel isolation:	Channels share a common connection
Current consumption:	100mA maximum
Output functions:	TPO and VP in module

'Logic' Variant

Voltage supply:	18 <Vs <30V dc
Output current:	>8mA high drive per channel (Current limited)
Output Voltage:	At least Voltage supply (Vs) -3V switch drop

24' Variant

External supply:	12 <Vs <30V dc
Output current:	100mA maximum high drive per channel (Current & Temperature limited)
Output voltage:	At least Voltage supply (Vs) -3V switch drop

DO4 – ORDER CODE

Module
2500M/DO4/LOGIC/EXTPWR	Four channel digital logic output 10mA max
2500M/DO424V/EXTPWR	Four channel digital 24V switched output

Terminal Unit
2500T/DO4/UNIV/NONE	Terminal unit with dummy cover fitted
2500T/DO4/UNIV/DCONNECT	Terminal unit with disconnects

DIGITAL OUTPUT MODULE

2500M/DO8 – Eight channel digital output module

The DO8 provides higher packing density and lower cost per channel.

The eight digital output module provides eight logic outputs, which are typically used for control, alarms or events outputs.

Each channel a 24V output with 0.75A capability (subject of a maximum of 4A total per module) can be used for driving solenoids, relays, lamps, fans, thyristor units, single phase Solid State Relays (SSRs) or some three phase SSRs.

Voltage supply (external):	18-30V dc to plant devices Vs
Leakage current off state:	<0.1mA
Current output:	
Channel maximum:	0.75A/channel
Module maximum:	4A total (500mA/channel, all channels ON)
Output voltage:	>Voltage supply (Vs) less 3V
System isolation:	Reinforced, 264V ac maximum
Channel isolation:	Channels share a common connection
Current consumption:	500mW maximum

2500M/RLY4 - Four channel relay output

This digital output module provides four relay outputs. The relay contacts are all fitted with removable snubber circuits to reduce contact arcing and prolong contact life.

|	
No of channels:	4 (3 normally open + 1 changeover)
Max current rating:	2A at up to 240V ac; 0.5A at 200V dc, increasing to 2A at 50V dc (resistive)
Min ratings:	AgCdO contacts offer best operating life switching more than 100mA 12V
Fuse:	3.15A, 20mm ceramic, time lag (T)
System isolation:	Reinforced, 264V ac maximum
Channel insulation:	Functional, 264V ac maximum
Contact life:	>10million operations @ 250V ac, 1A rms >600,000 operations @ 250V ac, 2A rms
De-rating:	The above ratings summarise the performance with resistive loads. With complex loads further derating may be required

AC Voltage
As the AC load becomes more "difficult" a more significant de-rating factor is required. The graph opposite shows the de-rating to be applied in terms of contact life, assuming the load requirement is pre-defined.

F1 Worst case
F2 Typical
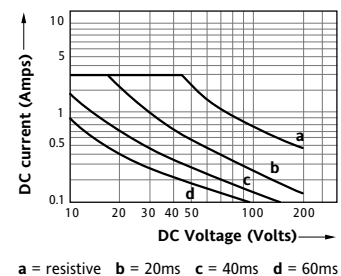

Reduction factor for inductive ac loads
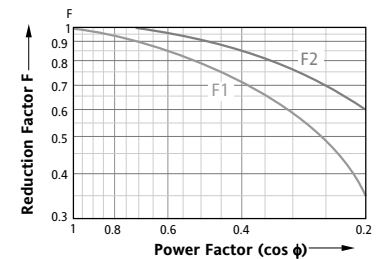
Contact life = resistive contact life x reduction factor

DC voltage
DC operation is also limited for difficult loads, particularly where there is significant inductance. Here the working current must be limited as shown, where the load time-constant (L/R, in ms) is the significant factor.

Max dc load breaking capacity

a = resistive   b = 20ms   c = 40ms   d = 60ms

2500M/FI2 - Two channel frequency input

Provides two isolated frequency input channels and selectable voltage output for loop or wetting current or sensor supply. Each input channel may be independently configured for magnetic, voltage, current or contact sensor types.

No of channels:		2
Channel isolation:		Functional, 100V ac maximum
System isolation:		Reinforced, 264V ac maximum

Frequency measurements

Range:	Logic:	0.01Hz-40KHz, debounce off
	Magnetic:	10Hz-40KHz
Resolution:		60ppm
Accuracy:		±100ppm, reference. ±160ppm overall
		±0.05% drift over 5 years

Pulse counting

Range:	Logic:	dc-40KHZ, debounce off
	Magnetic:	10HZ-40KHz

Magnetic sensor input specification

Input range:	10mV-80V p-p
Absolute maximum input:	±100V
Input impedance:	<30KΩ

Logic input specification

VOLTAGE Input range:	0.5-20V
Absolute maximum input:	50V
Input impedance:	<30KΩ
Threshold:	0-20V (0.5V steps), ±0.2V hystersis
	<5V = ±0.4% accuracy, >5V = ±0.7% accuracy
Sensor break level:	50-350mV
Sensor short circuit:	N/A
CURRENT Input range:	0.5-20mA
Absolute maximum input:	30mA
Input impedance:	1KΩ
Threshold:	0-20mA (0.5mA steps), ±0.2mA hystersis
	<5mA = ±0.4% accuracy, >5mA = ±0.7% accuracy
Sensor break level:	0.05-0.350mA
Sensor short circuit:	100R-350R
CONTACT Input range:	N/A
Absolut maximum input:	N/A
Input impedance:	5KΩ
Threshold	0-20V (0.5V steps), ±0.2V hystersis
	<5V = ±0.4% accuracy, >5V = ±0.7% accuracy
Sensor break level:	N/A
Debounce:	5, 10, 20, 50mS

Note: with debounce on, max frequency is limit and resolution is 600ppm

Output specification

Voltage:	Selectable, 8, 12, or 24V dc
Maximum current:	25mA
Voltage drop at full load:	1V
Accuracy:	±20%

FI2 – ORDER CODE

Module

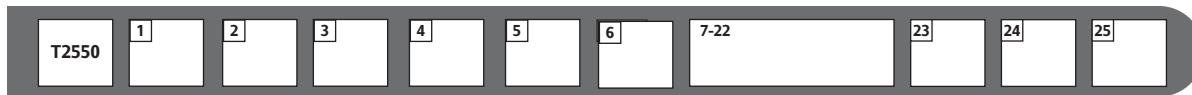|	
*2500M/FI2	Two channel isolated

Terminal Unit

*2500T/FI2	Terminal unit with dummy cover fitted
*2500T/FI2/DCONNECT	Terminal unit with disconnects

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* Please consult factory for availability

ORDER CODES

T2550	1	2	3	4	5	6	7-22	23	24	25

Basic Product

T2550R	Dual Processor – Redundant capable base and I/O
T2550S	Single Processor – Redundant ready base and I/O

1 — Base Size

16R	2 IOC Positions for Redundant operation	16 I/O Module positions
16S	1 IOC Positions for Redundant operation	16 I/O Module positions
*08R	2 IOC Positions for Redundant operation	8 I/O Module positions
*08S	1 IOC Positions for Redundant operation	8 I/O Module positions
*06R	2 IOC Positions for Redundant operation	6 I/O Module positions
*06S	1 IOC Positions for Redundant operation	6 I/O Module positions
*04R	2 IOC Positions for Redundant operation	4 I/O Module positions
*04S	1 IOC Positions for Redundant operation	4 I/O Module positions
*00R	2 IOC Positions for Redundant operation	0 I/O Module positions
*00S	1 IOC Positions for Redundant operation	0 I/O Module positions

2 — Earthing System

NONE	Two earth clamps fitted
C16	Earthing clamp for a 16 I/O module base
*C08	Earthing clamp for a 8 I/O module base
*C06	Earthing clamp for a 6 I/O module base
*C04	Earthing clamp for a 4 I/O module base

3 — IOC and Software

	Foundation	Standard	Control	Advanced
L10	Unbounded	0	0	off
L20	Unbounded	50	4	off
L30	Unbounded	100	8	off
L40	Unbounded	Unbounded	4	off
L50	Unbounded	Unbounded	16	off
L60	Unbounded	Unbounded	24	off
L70	Unbounded	Unbounded	32	off
L80	Unbounded	Unbounded	Unbounded	off
L90	Unbounded	Unbounded	Unbounded	on

4 — Ethernet Comms Protocol

ELIN	LIN peer-to-peer communications
MB-TCPM	Modbus-TCP Master communications (Includes LIN peer-to-peer)

5 — Serial Comms Protocol

SERIAL	HMI communications and Raw communications (Non Isolated)
MB	Modbus Master communications (Non Isolated)
*ISOSERIAL	HMI communications and Raw communications (Isolated)
*ISOMB	Modbus Master communications (Isolated)

6 — Terminal Unit Connector

RJ45	RJ45 connector for Modbus

7-22 — Module and Terminations

AI2-TC	2 ch – isolated universal analogue input module with CJC for T/C
AI2-DC	2 ch – isolated universal analogue input module for PT100, Hiz inputs
AI2-MA	2 ch – isolated universal analogue input module - 5 shunt fitted for mA inputs
AI3	3 ch – isolated 4-20mA analogue input module with 24V Tx PSU
AI3-DT	3 ch – isolated 4-20mA analogue input module with 24V Tx PSU with Disconnects
AI4-TC	4 ch – non isolated T/C, with CJC
A14-MV	4 ch – non isolated mV input module
AI4-MA	4 ch – non isolated mA input module
A02	2 ch – isolated analogue output module mA, volts
A02-DT	2 ch – isolated analogue output module mA, volts with Disconnects
DI424	4 ch – digital input module
DI424-DT	4 ch – digital input module with Disconnects
DI6-230V	6 ch – 230 volt ac logic input
DI6-115V	6 ch – 115 volt ac logic input
DI8L	8 ch – non isolated Digital Input (Logic Inputs only)
DI8L-DT	8 ch – non isolated Digital Input (Logic Inputs only) with Disconnects
DI8C	8 ch – non isolated Digital Input (Contact Inputs only)
DI8C-DT	8 ch – non isolated Digital Input (Contact Inputs only) with Disconnects
DO4L	4 ch – digital output module Logic output 10mA max
DO4L-DT	4 ch – digital output module Logic output 10mA max with Disconnects
DO424	4 ch – digital output module 24 volt dc switched output
DO424-DT	4 ch – digital output module 24 volt dc switched output with Disconnects
DO8	8 ch – digital output module. Rated 1A per channel max 4A per module
RLY4	4 ch – isolated relay output module. Rated 2A ac
RLY4-FUSE	4 ch – isolated relay output module. Rated 2A ac, with 4 off 3.15A fuses
*FI2	2 ch – Frequency input
*FI2-DT	2 ch – Frequency input with disconnects
BLANK	Blank terminal unit
NONE	No terminal unit or blank fitted

23 — Application

NONE	No Application loaded
YYYXXX	Pre-configured application loaded

24 — Manuals

CDM	CD with Manuals
NONE	Manuals on Processor Flash Card
MANUALS	Paper Copy of Manuals

25 — Language

ENG	English

Please consult factory for availability

T2550

| T2550 | 1 | 2 | 3 | 4 |

Base Unit

| T2550B | DEFAULT | 2 | 3 | 4 |

1 — IOC and Software

	Foundation	Standard	Control	Advanced
L10	Unbounded	0	0	off
L20	Unbounded	50	4	off
L30	Unbounded	100	8	off
L40	Unbounded	Unbounded	4	off
L50	Unbounded	Unbounded	16	off
L60	Unbounded	Unbounded	24	off
L70	Unbounded	Unbounded	32	off
L80	Unbounded	Unbounded	Unbounded	off
L90	Unbounded	Unbounded	Unbounded	on

2 — Flash Card Size

F32	32M Flash card (standard)
NONE	None fitted

3 — Ethernet Comms Protocol

ELIN	LIN peer-to-peer communications
MB-TCPM	Modbus-TCP Master communications (Includes LIN peer-to-peer)

4 — Serial Comms Protocol

SERIAL	HMI communications and Raw communications (Non Isolated)
MB	Modbus Master communications (Non Isolated)
*ISOSERIAL	HMI communications and Raw communications (Isolated)
*ISOMB	Modbus Master communications (Isolated)

Please consult factory for availability

2 — Base Size

16R	2 IOC Positions for Redundant operation	16 I/O Module positions
16S	1 IOC Positions for Redundant operation	16 I/O Module positions
*08R	2 IOC Positions for Redundant operation	8 I/O Module positions
*08S	1 IOC Positions for Redundant operation	8 I/O Module positions
*06R	2 IOC Positions for Redundant operation	6 I/O Module positions
*06S	1 IOC Positions for Redundant operation	6 I/O Module positions
*04R	2 IOC Positions for Redundant operation	4 I/O Module positions
*04S	1 IOC Positions for Redundant operation	4 I/O Module positions
*00R	2 IOC Positions for Redundant operation	0 I/O Module positions
*00S	1 IOC Positions for Redundant operation	0 I/O Module positions

3 — Earthing System

NONE	Two earth clamps fitted
C16	Earthing clamp for a 16 I/O module base
*C08	Earthing clamp for a 8 I/O module base
*C06	Earthing clamp for a 6 I/O module base
*C04	Earthing clamp for a 4 I/O module base

4 — Manuals

CDM	CD with Manuals
NONE	Manuals on Processor Flash Card
MANUALS	Paper Copy of Manuals

Please consult factory for availability

Modules

AI2 Two Channel Analogue Input

2500M/AI2UNIV	Two Channel – isolated universal input
2500T/AI2/TC/NONE	Terminal unit for TC with CJC
2500T/AI2/DC/NONE	Terminal unit for Mv, V, PT100, Hiz inputs
2500T/AI2/DC/SHUNT	Terminal unit for 5 ohm shunt fitted for mA

AI3 Three Channel Analogue Input

2500M/AI3UNIV	Three channel – isolated 4-20mA analogue input with isolated 24V Tx PSU
2500T/AI3/UNIV/NONE	Terminal unit with dummy cover fitted
2500T/AI3/UNIV/DCONNECT	Terminal unit with disconnect

AI4 Four Channel Analogue Input

2500M/AI4UNIV	Four channel – T/C, mV, mA input
2500T/AI4/TC/NONE	Terminal unit for 4 channel TC with CJC
2500T/AI4/mV/NONE	Terminal unit for 4 channel mV
2500T/AI4/mA/NONE	Terminal unit for 4 channel mA

AO2 Two Channel Analogue Output

2500M/AO2UNIV	Two channel isolated mA, volts
2500T/AO2/UNIV/NONE	Terminal unit
2500T/AO2/DCONNECT	Terminal unit with disconnect

DI4 Four Channel Digital Input

2500M/DI424V/EXTPWR	Two channel – input
2500T/DI4/UNIV/NONE	Terminal unit with dummy cover fitted
2500T/DI4/UNIV/DCONNECT	Terminal unit with disconnects

DI8 Eight Channel Digital Input

2500M/DI8logic/NONE	Eight channel – non isolated Logic
2500M/DI8contact/NONE	Eight channel – non isolated Connect
2500T/DI8/UNIV/NONE	Terminal unit
2500T/DI8/UNIV/DCONNECT	Terminal unit with disconnects

DI6 Six Channle AC Voltage Input

2500M/DI6HVAC/230V	Six channel high voltage 230 volt ac logic
2500M/DI6HVAC/115V	Six channel high voltage 115 volt ac logic
2500T/DI6/UNIV	Terminal unit

DO4 Four Channel Logic Output

2500M/DO4/LOGIC/EXTPWR	Four channel digital logic output 10mA max
2500M/DO424V/EXTPWR	Four channel digital 24d switched output
2500T/DO4/UNIV/NONE	Terminal unit with dummy cover fitted
2500T/DO4/UNIV/DCONNECT	Terminal unit with disconnects

DO8 Eight Channel Digital Output

2500M/DO8/EXTPWR	Eight channel digital output
2500T/DO8/NONE	Terminal unit

RLY4 Four Channel Relay Output

2500M/RLY4	Four channel isolated relay output
2500T/RLY4/NOFUSE	Terminal unit
2500T/RL4/FUSE2A	Terminal unit with four 3.15a fuses

FI2 Two Channel Frequency Input

*2500M/FI2	Two channel isolated
*2500T/FI2	Terminal unit with dummy cover fitted
*2500T/FI2/DCONNECT	Terminal unit with disconnects

Please consult factory for availability

Eurotherm: International sales and service

Understanding and providing local support is a key part of Eurotherm's business. Complementing worldwide Eurotherm offices are a whole range of partners and a comprehensive technical support team... to ensure you get a service you will want to go back to.

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